SYNCHRONOUS COLLABORATION BASED ON
PEER-TO-PEER COMMUNICATION

ABSTRACT OF THE DISCLOSURE

A peer-to-peer protocol is based on the use of global timestamps and
client priorities in serializing modifications to a shared workspace of real-time
collaboration. The method caters to dynamic clients wherein a client can leave
or join an ongoing collaboration session as long as there is always at least one
client present/remaining in the collaboration session. The method can support
multiple definitions of a modification, including partitioning-based
definitions, wherein the method provides full support for locking of partitions,
and a full treatment of inter-partition synchronisation via a modification
definition over multiple partitions. The method is capable of utilizing the
many standard methods of creating a global, distributed, synchronized clock
for the global timestamps utilized by it. The method is rollback-based for
correcting tentative but incorrect serializations, and provides additional
backup in terms of checkpoints for additional safety and for the support of
lightweight, pervasive clients. The method includes many optimizations for
efficiency, and includes a method of switching to and back from distributed
server-based serialization for the periods when the network response is better
suited to a distributed server than the peer-to-peer protocol.

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